

# **P5V580-AT**

## **ISA/PCI/IO Mother Board User's Manual**

PART NO. M523G0010A Rev 2.0 AUG. 1997

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## 1. SPECIFICATIONS

### 1. P5V580-AT SPECIFICATIONS

|                     |                       |                                                               |
|---------------------|-----------------------|---------------------------------------------------------------|
| <b>CPU</b>          | <b>CPU</b>            | Intel Pentium/P54C, P54CS, P55C<br>Cyrix 6x86, AMD 5k86 (K5)  |
|                     | <b>CPU Speed</b>      | P54C : 75/90/100/120/133/150/166/200MHz;<br>P55C : 166/200MHz |
|                     | <b>System Speed</b>   | 50/55/60/66/75MHz                                             |
| <b>BIOS</b>         | <b>BIOS</b>           | 128K BIOS; PnP Compliant                                      |
|                     | <b>BIOS ROM</b>       | Flash Memory                                                  |
| <b>CACHE</b>        | <b>Internal (L1)</b>  | Write Back                                                    |
|                     | <b>External (L2)</b>  | Pipe-line Burst Write Back SRAM(256K/512K)                    |
| <b>MEMORY</b>       | <b>DRAM Size</b>      | From 8M up to 512M Bytes                                      |
|                     | <b>DRAM Module</b>    | SIMM x 4 for 2 Banks of 72 Pin                                |
|                     |                       | DIMM x 1 of 168 Pin for 3.3V Sync. and EDO DRAM               |
|                     |                       | Data Path 64 Bit Wide                                         |
| <b>On Board I/O</b> | <b>I/O Function</b>   | Local Bus Enhanced Dual-Channel IDE                           |
|                     |                       | Bus Master PCI IDE /Mode 4 Support                            |
|                     |                       | ECP/EPP Parallel Port                                         |
|                     |                       | 2 Serial Port                                                 |
|                     |                       | IR Function (Optional)                                        |
|                     |                       | FDD Support                                                   |
| <b>GREEN</b>        | <b>SYSTEM</b>         | SMM Control, Stop CPU Clock                                   |
|                     | <b>VGA</b>            | Control of DPMS                                               |
| <b>SLOT</b>         | <b>Expansion Slot</b> | 16 Bit ISA x 4                                                |
|                     |                       | 32 Bit PCI x 3 (3 Master Support)                             |
|                     | <b>PCI Bus</b>        | Fully Synchronous 25/27.5/30/33/37.5Mhz PCI Bus Interface     |
|                     | <b>MEMORY</b>         | DIMM x 1 + SIMM x 4                                           |
| <b>Mouse</b>        |                       | PS/2 Mouse                                                    |
| <b>Keyboard</b>     | <b>Keyboard CNN</b>   | AT Keyboard                                                   |
| <b>Others</b>       | <b>Main Chipset</b>   | VIA 580VP CHIPSET                                             |
|                     | <b>IO Chipset</b>     | SMC669                                                        |
|                     | <b>PCB Size</b>       | 220mm x 230mm x 1.6mm, 4 layers                               |

## 2. JUMPER SETTING

### 2.1. Table of Jumper Setting

#### ● CPU Voltage Select

| CPU TYPE                | JP1 | JP10 | JP9 | CPU CORE VOLTAGE |
|-------------------------|-----|------|-----|------------------|
| PENTIUM                 | OFF | ON   | 1-2 | 3.3V             |
| Cyrix 6X86/AMD K5       | OFF | ON   | 3-4 | 3.5V             |
| PENTIUM MMX/Cyrix 6X86L | ON  | OFF  | 5-6 | 2.8V             |

#### ● CPU Jumper Setting

| INTEL  | JP6 | JP7 | JP8 | JP2 | JP3 |
|--------|-----|-----|-----|-----|-----|
| 75MHz  | 2-3 | 2-3 | 2-3 | OFF | OFF |
| 90MHz  | 2-3 | 2-3 | 1-2 | OFF | OFF |
| 120MHz |     |     |     | OFF | ON  |
| 150MHz |     |     |     | ON  | ON  |
| 100MHz | 2-3 | 1-2 | 2-3 | OFF | OFF |
| 133MHz |     |     |     | OFF | ON  |
| 166MHz |     |     |     | ON  | ON  |
| 200MHz |     |     |     | ON  | OFF |

◇ If select Cyrix CPU, Jp11 must be set "ON"

| Cyrix                   | JP6 | JP7 | JP8 | JP2 | JP3 |
|-------------------------|-----|-----|-----|-----|-----|
| 6x86 P120 <sup>+</sup>  | 2-3 | 2-3 | 2-3 | OFF | ON  |
| 6x86 P133 <sup>+</sup>  | 1-2 | 2-3 | 2-3 |     |     |
| 6x86 P150 <sup>+</sup>  | 2-3 | 2-3 | 1-2 |     |     |
| 6x86L P166 <sup>+</sup> | 2-3 | 1-2 | 2-3 |     |     |
| 6x86L P200 <sup>+</sup> | 1-2 | 2-3 | 1-2 |     |     |

| AMD K5 | JP6 | JP7 | JP8 | JP2 | JP3 |
|--------|-----|-----|-----|-----|-----|
| PR75   | 2-3 | 2-3 | 2-3 | OFF | OFF |
| PR90   | 2-3 | 2-3 | 1-2 |     |     |
| PR100  | 2-3 | 1-2 | 2-3 |     |     |
| PR120  | 2-3 | 2-3 | 1-2 |     |     |
| PR133  | 2-3 | 1-2 | 2-3 |     |     |
| PR150  | 2-3 | 2-3 | 1-2 | ON  | ON  |
| PR166  | 2-3 | 1-2 | 2-3 | ON  | ON  |

**NOTES :** 1. S.C. : SYSTEM CLOCK  
2. C.R. : CLOCK RATIO

3. You must make sure your PCI card work on 37.5MHz frequency when run Cyrix P200<sup>+</sup> CPU

## 2. JUMPER SETTING

### 2.1. Table of Jumper Setting

#### ● CPU Voltage Select

| CPU TYPE                | JP1 | JP10 | JP9 | CPU CORE VOLTAGE |
|-------------------------|-----|------|-----|------------------|
| PENTIUM                 | OFF | ON   | 1-2 | 3.3V             |
| Cyrix 6X86/AMD K5       | OFF | ON   | 3-4 | 3.5V             |
| PENTIUM MMX/Cyrix 6X86L | ON  | OFF  | 5-6 | 2.8V             |

#### ● CPU Jumper Setting

| INTEL  | JP6 | JP7 | JP8 | JP2 | JP3 |
|--------|-----|-----|-----|-----|-----|
| 75MHz  | 2-3 | 2-3 | 2-3 | OFF | OFF |
| 90MHz  |     |     |     | OFF | OFF |
| 120MHz | 2-3 | 2-3 | 1-2 | OFF | ON  |
| 150MHz |     |     |     | ON  | ON  |
| 100MHz |     |     |     | OFF | OFF |
| 133MHz |     |     |     | OFF | ON  |
| 166MHz | 2-3 | 1-2 | 2-3 | ON  | ON  |
| 200MHz |     |     |     | ON  | OFF |
| 233MHz |     |     |     | OFF | OFF |

✧ If select Cyrix CPU, JP11 must be set "ON"

| Cyrix                        | JP6 | JP7 | JP8 | JP2 | JP3 |
|------------------------------|-----|-----|-----|-----|-----|
| 6x86 P120 <sup>+</sup>       | 2-3 | 2-3 | 2-3 | OFF | ON  |
| 6x86 P133 <sup>+</sup>       | 1-2 | 2-3 | 2-3 |     |     |
| 6x86 P150 <sup>+</sup>       | 2-3 | 2-3 | 1-2 |     |     |
| 6x86/6x86L P166 <sup>+</sup> | 2-3 | 1-2 | 2-3 |     |     |
| 6x86L P200 <sup>+</sup>      | 1-2 | 2-3 | 1-2 |     |     |

| AMD K5 | JP6 | JP7 | JP8 | JP2 | JP3 |
|--------|-----|-----|-----|-----|-----|
| PR75   | 2-3 | 2-3 | 2-3 | OFF | OFF |
| PR90   | 2-3 | 2-3 | 1-2 |     |     |
| PR100  | 2-3 | 1-2 | 2-3 |     |     |
| PR120  | 2-3 | 2-3 | 1-2 |     |     |
| PR133  | 2-3 | 1-2 | 2-3 |     |     |
| PR150  | 2-3 | 2-3 | 1-2 | ON  | ON  |
| PR166  | 2-3 | 1-2 | 2-3 | ON  | ON  |

- NOTES :**
1. S.C. : SYSTEM CLOCK
  2. C.R. : CLOCK RATIO
  3. You must make sure your PCI card work on 37.5Mhz frequency when run Cyrix P200<sup>+</sup> CPU

## 2. JUMPER SETTING

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### ● Memory Size

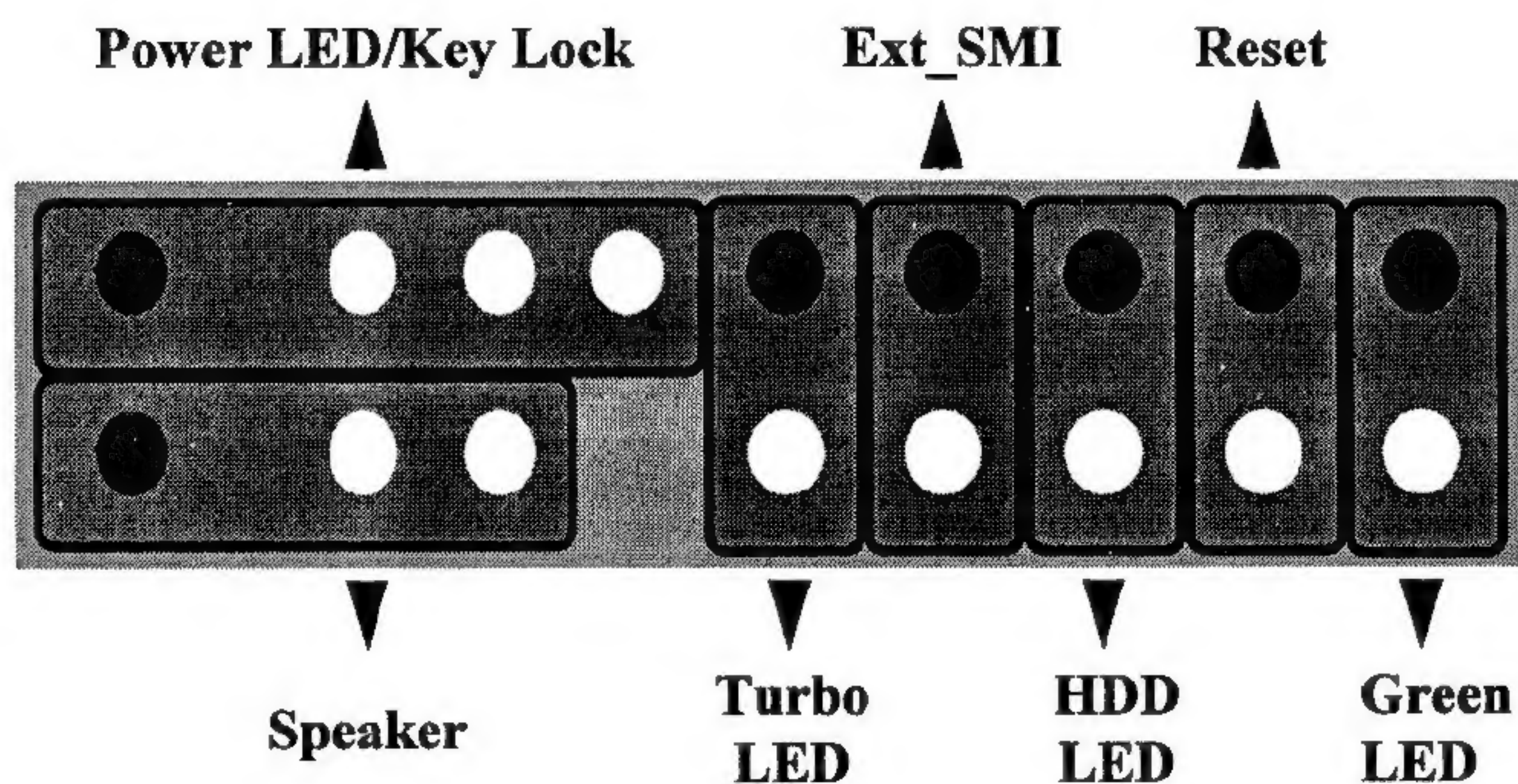
#### **.168 PIN DIMM & 72 PIN SIMM**

| Option  | Type                                |
|---------|-------------------------------------|
| Bank0/1 | 8M, 16M, 32M, 64M                   |
| Bank2/3 | 4M/4M,8M/8M,16M/16M,32M/32M,64M/64M |
| Bank4/5 | 4M/4M,8M/8M,16M/16M,32M/32M,64M/64M |

- NOTE :**
- 1 > 4M : [ 1Mx(32/36)bit] • 2  
8M : [ 2Mx(32/36)bit] • 2  
16M : [ 4Mx(32/36)bit] • 2  
32M : [ 8Mx(32/36)bit] • 2  
64M : [ 16Mx(32/36)bit] • 2
  - 2 > The DRAM interface supports 8Mbytes to 256 Mbytes
  - 3 > For access time SIMM, must use 70us or less.
  - 4 > The DRAM modules installed to the same memory bank need to be consistent. But the combinations of different memory size of Bank 1 and Bank 2 are accepted.
  - 5 > Bank 0/1 support 168pin 3.3V Sync. and EDO DRAM.
  - 6 > Bank 2/3/4/5 support 72 pin 5V EDO and fast page mode DRAM

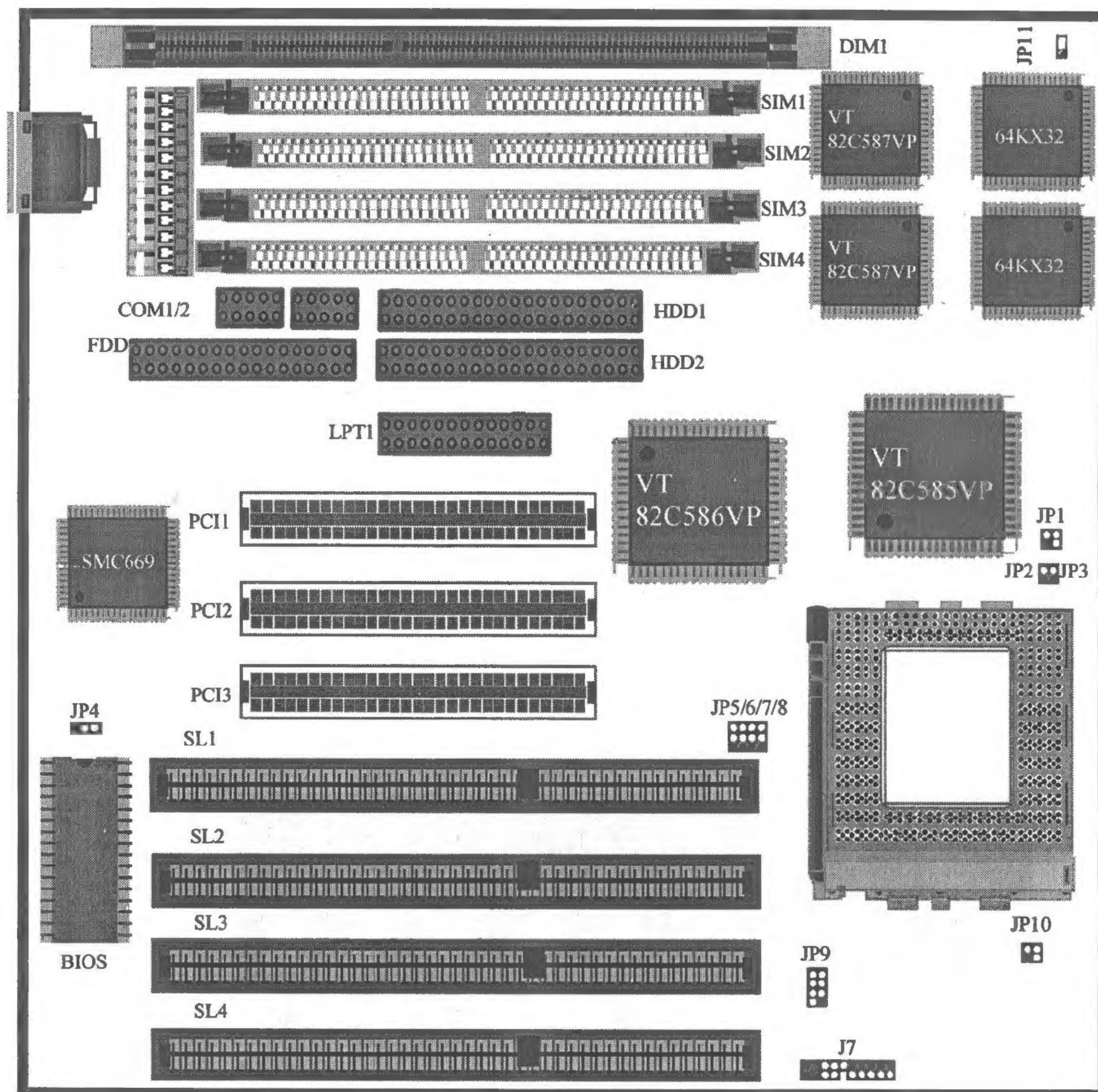
**● Special Function Jumpers**

| <b>Jumper Number</b> | <b>FUNCTION</b>         |
|----------------------|-------------------------|
| <b>J1</b>            | K/B CONNECT             |
| <b>J2</b>            | PS/2 MOUSE              |
| <b>J6</b>            | IR                      |
| <b>COM 1</b>         | COM PORT 1              |
| <b>COM 2</b>         | COM PORT 2              |
| <b>IDE 1</b>         | IDE 1                   |
| <b>IDE 2</b>         | IDE 2                   |
| <b>FDC 1</b>         | FDD                     |
| <b>LPT 1</b>         | PRINT PORT 1            |
| <b>JP4</b>           | CMOS CLEAR              |
| <b>J7</b>            | MULTIFUNCTION CONNECTOR |

**MULTIFUNCTION CONNECTOR**

### 2.2 Chart of jumper

## JUMPER OUTLINE



## **3. AWARD BIOS SETUP**

### **3.1 Entering Setup**

Power on the computer and press <Del> immediately to allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS : <CTRL-ALT-ESC> OR <DEL> KEY

If the message disappears before you respond, restart the system by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

### 3.2 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

|                                                                           |                           |
|---------------------------------------------------------------------------|---------------------------|
| ROM PCI/ISA BIOS (2A5LAE39)<br>CMOS SETUP UTILITY<br>AWARD SOFTWARE, INC. |                           |
| STANDARD CMOS SETUP                                                       | INTEGRATED PERIPHERALS    |
| BIOS FEATURES SETUP                                                       | SUPERVISOR PASSWORD       |
| CHIPSET FEATURES SETUP                                                    | USER PASSWORD             |
| POWER MANAGEMENT SETUP                                                    | IDE HDD AUTO DETECTION    |
| PNP/PCI CONFIGURATION SETUP                                               | HDD LOW LEVEL FORMAT      |
| LOAD BIOS DEFAULTS                                                        | SAVE & EXIT SETUP         |
| LOAD SETUP DEFAULTS                                                       | EXIT WITHOUT SAVING       |
| Esc : Quit                                                                | ↑ ↓ → ← : Select Item     |
| F10 : Save & Exit Setup                                                   | (Shift) F2 : Change Color |
| Time, Date, Hard Disk Type...                                             |                           |

#### STANDARD CMOS SETUP

This setup page includes all the items in a standard compatible BIOS.

#### BIOS FEATURES SETUP

This setup page includes all the items of Award special enhanced features.

#### CHIPSET FEATURES SETUP

This setup page includes all the items of chipset special features.

#### POWER MANAGEMENT SETUP

This category determines how much power consumption for system after selecting below items. Default value is Disable.

#### PNP/PCI CONFIGURATION SETUP

This category specifies the value (in units of PCI bus clocks) of the latency time for this PCI bus master and the IRQ level for a PCI device.

### **LOAD BIOS DEFAULTS**

BIOS defaults indicates the most appropriate value of the system parameter which the system would be in minimum performance.

### **LOAD SETUP DEFAULTS**

Chipset defaults indicates the values required by the system for the maximum performance.

### **INTEGRATED PERIPHERALS**

IDE, FDD, Serial, Parallel port I/O configuration.

### **SUPERVISOR & USER PASSWORD SETTING**

Change, set, or disable password. It allows you to limit access to the system and Setup.

### **IDE HDD AUTO DETECTION**

Automatically configure hard disk parameters.

### **HDD LOW LEVEL FORMAT**

To perform low level format of hard disk drive.

### **SAVE & EXIT SETUP**

Save CMOS value changes to CMOS and exit setup.

### **EXIT WITHOUT SAVE**

Abandon all CMOS value changes and exit setup.

## 3. AWARD BIOS SETUP

### 3.3 Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

ROM PCI/ISA BIOS (2A5LAE39)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

|                                                                |        |                                                    |      |      |                                                                      |       |        |      |  |
|----------------------------------------------------------------|--------|----------------------------------------------------|------|------|----------------------------------------------------------------------|-------|--------|------|--|
| Date (mm:dd:yy) : Fri, Apr 7 1995<br>Time(hh:mm:ss) : 00:00:00 |        |                                                    |      |      |                                                                      |       |        |      |  |
| HARD DISKS                                                     | TYPE   | SIZE                                               | CYLS | HEAD | PRECOMP                                                              | LANDE | SECTOR | MODE |  |
| Primary Master                                                 | : Auto | 0                                                  | 0    | 0    | 0                                                                    | 0     | 0      | Auto |  |
| Primary Slave                                                  | : Auto | 0                                                  | 0    | 0    | 0                                                                    | 0     | 0      | Auto |  |
| Secondary Master                                               | : Auto | 0                                                  | 0    | 0    | 0                                                                    | 0     | 0      | Auto |  |
| Secondary Slave                                                | : Auto | 0                                                  | 0    | 0    | 0                                                                    | 0     | 0      | Auto |  |
| Drive A : 1.44M, 3.5in.<br>Drive B : None                      |        |                                                    |      |      | Base Memory : 640K<br>Extended Memory : 3328K<br>Other Memory : 128K |       |        |      |  |
| Video : EGA / VGA<br>Halt On : All Errors                      |        |                                                    |      |      | Total Memory : 4096K                                                 |       |        |      |  |
| ESC : Quit<br>F1 : Help                                        |        | ↑ ↓ → ← : Select Item<br>(Shift) F2 : Change Color |      |      | PU / PD / + / - : Modify                                             |       |        |      |  |

#### Date

The date format is <day>, <date> <month> <year>.

|       |                                                                                                       |
|-------|-------------------------------------------------------------------------------------------------------|
| day   | The day of week, from Sun to Sat, determined by the BIOS, is read only                                |
| date  | The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key |
| month | The month, Jan through Dec                                                                            |
| year  | The year, depends on the year of BIOS                                                                 |

#### Time

The time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

#### **Primary Master/Primary Slave/Secondary Master/Secondary Slave**

The category identifies primary and secondary channels. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.

Press PgUp/<+> or PgDn/<-> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None".

If the controller of HDD interface is CD-ROM, the selection shall be "None".

|          |                     |
|----------|---------------------|
| CYLS.    | number of cylinders |
| HEADS    | number of heads     |
| PRECOMP  | write precomp       |
| LANDZONE | landing zone        |
| SECTORS  | number of sectors   |
| MODE     | HDD access mode     |

If a hard disk has not been installed select NONE and press <Enter>.

#### **Drive A type/Drive B type**

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

|               |                                                              |
|---------------|--------------------------------------------------------------|
| None          | No floppy drive installed                                    |
| 360K, 5.25 in | 5-1/4 inch PC-type standard drive; 360 kilobyte capacity     |
| 1.2M, 5.25 in | 5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity |
| 720K, 3.5 in  | 3-1/2 inch double-sided drive; 720 kilobyte capacity         |
| 1.44M, 3.5 in | 3-1/2 inch double-sided drive; 1.44 megabyte capacity        |
| 2.88M, 3.5 in | 3-1/2 inch double-sided drive; 2.88 megabyte capacity        |

### 3. AWARD BIOS SETUP

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#### Video

The category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type. There are two ways to boot up the system:

1. When VGA as primary and monochrome as secondary, the selection of the video type is "VGA Mode"
2. When monochrome as primary and VGA as secondary, the selection of the video type is "Monochrome Mode".

|         |                                                                                              |
|---------|----------------------------------------------------------------------------------------------|
| EGA/VGA | Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA, or PGA monitor adapters. |
| CGA 40  | Color Graphics Adapter, power up in 40 column mode                                           |
| CGA 80  | Color Graphics Adapter, power up in 80 column mode                                           |
| MONO    | Monochrome adapter, includes high resolution monochrome adapters                             |

#### Error halt

The category determines whether the computer will stop if an error is detected during power up.

|                   |                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------|
| No errors         | Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted. |
| All errors        | The system boot will not be stopped for any error that may be detected.                          |
| All, But Keyboard | The system boot will not stop for a keyboard error; it will stop for all other errors.           |
| All, But Diskette | The system boot will not stop for a disk error; it will stop for all other errors.               |
| All, But Disk/Key | The system boot will not stop for a keyboard or disk error; it will stop for all other errors.   |

#### Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

##### ☒ *Base Memory*

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

##### ☒ *Extended Memory*

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

##### ☒ *Other Memory*

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.

##### ☒ *Total Memory*

System total memory is the sum of basic memory, extended memory, and other memory

## 3.4 BIOS Features Setup Menu

ROM PCI/ISA BIOS (2A5LAE39)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

|                            |            |                          |                       |
|----------------------------|------------|--------------------------|-----------------------|
| Virus Warning              | : Disabled | Video BIOS Shadow        | : Enable              |
| CPU Internal Cache         | : Enabled  | C8000-CBFFF Shadow       | : Disabled            |
| External Cache             | : Enabled  | CC000-CFFFF Shadow       | : Disabled            |
| Boot Sequence              | : A,C,SCSI | D0000-D3FFF Shadow       | : Disabled            |
| Swap Floppy Drive          | : Disabled | D4000-D7FFF Shadow       | : Disabled            |
| Boot UP Floppy Seek        | : Enabled  | D8000-DBFFF Shadow       | : Disabled            |
| Boot Up NumLock Status     | : On       | DC000-DFFFF Shadow       | : Disabled            |
| Typematic Rate Setting     | : Disabled |                          |                       |
| Typematic Rate (Chars/Sec) | : 6        |                          |                       |
| Typematic Delay (Msec)     | : 250      |                          |                       |
| Security Option            | : Setup    |                          |                       |
| OS Select For DRAM > 64MB  | : Non-OS2  |                          |                       |
|                            |            | ESC : Quit               | ↑ ↓ → ← : Select Item |
|                            |            | F1 : Help                | PU/PD/+/- : Modify    |
|                            |            | F5 : Old Values          | (Shift) F2 : Color    |
|                            |            | F6 : Load BIOS Defaults  |                       |
|                            |            | F7 : Load Setup Defaults |                       |

### Virus Warning

This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem.

|                                                |  |
|------------------------------------------------|--|
| <b>! WARNING !</b>                             |  |
| Disk boot sector is to be modified             |  |
| Type "Y" to accept write or "N" to abort write |  |
| Award Software, Inc.                           |  |

|          |                                                                                                                                                                     |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enabled  | Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table. |
| Disabled | No warning message to appear when anything attempts to access the boot sector or hard disk partition table.                                                         |

Note: This function is available only for DOS and other OSes that do not trap INT13.

### CPU Internal Cache

These two categories speed up memory access. The default value is Enable.

|          |               |
|----------|---------------|
| Enabled  | Enable cache  |
| Disabled | Disable cache |

### **3. AWARD BIOS SETUP**

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#### **External Cache**

The External Cache selection enables or disables the external (L2) cache and the onboard secondary cache. The default setting is Enabled.

|          |                        |
|----------|------------------------|
| Enabled  | Enable external cache  |
| Disabled | Disable external cache |

#### **Boot Sequence**

This category determines which drive the computer searches first for the disk operating system (i.e., DOS). Default value is A,C,SCSI.

Boot Sequence:

- |    |             |     |            |
|----|-------------|-----|------------|
| 1. | A, C, SCSI  | 6.  | E, A, SCSI |
| 2. | C, A, SCSI  | 7.  | F, A, SCSI |
| 3. | C, CDROM, A | 8.  | SCSI, A, C |
| 4. | CDROM, C, A | 9.  | SCSI, C, A |
| 5. | D, A, SCSI  | 10. | C only     |

#### **Swap Floppy Seek**

This category can change A and B drive.

|          |                               |
|----------|-------------------------------|
| Enabled  | assign A to B & B to A drive. |
| Disabled | Normal.                       |

#### **Boot Up Floppy Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

|          |                                                                                                                                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enabled  | BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks. |
| Disabled | BIOS will not search for the type of floppy disk drive by track number, Note that there will not be any warning message if the drive installed is 360K.               |

#### **Boot Up NumLock Status**

The default value is On.

|     |                       |
|-----|-----------------------|
| On  | Keypad is number keys |
| Off | Keypad is arrow keys  |

#### **Typematic Rate Setting**

This determines the typematic rate.

|          |                                                                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enabled  | Enable typematic rate and typematic delay programming                                                                                                     |
| Disabled | Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard. |

#### **Typematic Rate (Chars/Sec)**

|    |                         |
|----|-------------------------|
| 6  | 6 characters per second |
| 8  | 8 characters per second |
| 10 | 10 character per second |
| 12 | 12 character per second |
| 15 | 15 character per second |
| 20 | 20 character per second |
| 24 | 24 character per second |
| 30 | 30 character per second |

#### **Typematic Delay (Msec)**

|      |           |
|------|-----------|
| 250  | 250 msec  |
| 500  | 500 msec  |
| 750  | 750 msec  |
| 1000 | 1000 msec |

#### **Security Option**

This category allows you to limit access to the system and Setup, or just to Setup.

|        |                                                                                                                   |
|--------|-------------------------------------------------------------------------------------------------------------------|
| System | The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. |
| Setup  | The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.    |

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

#### **Video BIOS Shadow**

It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

|          |                          |
|----------|--------------------------|
| Enabled  | Video shadow is enabled  |
| Disabled | Video shadow is disabled |

### 3.5 Chipset Features Setup Menu

**ROM PCI/ISA BIOS (2A5LAE39)  
CHIPSET FEATURES  
AWARD SOFTWARE, INC.**

|                                                                                                                 |                                                                                                                          |                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <p>Video BIOS Cacheable : Enabled</p> <p>System BIOS Cacheable : Enabled</p> <p>DRAM Timing Control : Turbo</p> | <p>ESC : Quit</p> <p>F1 : Help</p> <p>F5 : Old Values</p> <p>F6 : Load BIOS Defaults</p> <p>F7 : Load Setup Defaults</p> | <p>↑ ↓ → ← : Select Item</p> <p>PU/PD/+/- : Modify</p> <p>(shift)F2 : Color</p> |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

### Video BIOS Cacheable

The Video BIOS Cache selection allows you to cache the video BIOS for even higher performance. The default setting is Enabled.

## System BIOS Cacheable

The System BIOS Cache selection allows you to cache the system BIOS for even higher performance. The default setting is Enabled

## DRAM Timing Control

**This option specifies Turbo / Fast / Medium / Normal mode DRAM Timing**

## 3.6 Power Management Setup

The Power management setup will appear on your screen like this:

ROM PCI/ISA BIOS (2A5LAE39)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

|                   |                  |                                  |                          |
|-------------------|------------------|----------------------------------|--------------------------|
| Power Management  | : Disable        | IRQ5 (LPT 2)                     | : Primary                |
| PM Control by APM | : Yes            | IRQ6 (Floppy Disk)               | : Primary                |
| Video Off Option  | : Suspend -> off | IRQ7 (LPT 1)                     | : Primary                |
| Video Off Method  | : V/H SYNC+Blank | IRQ8 (RTC Alarm)                 | : Disabled               |
| Conserve Mode     | : Disabled       | IRQ9 (IRQ2 Redir)                | : Secomdary              |
| MODEM Use IRQ     | : 3              | IRQ10 (Reserved)                 | : Secomdary              |
| ** PM Timers **   |                  | IRQ11 (Reserved)                 | : Secomdary              |
| HD Power Down     | : Disabled       | IRQ12 (PS/2 Mouse)               | : Primary                |
| Doze Mode         | : Disabled       | IRQ13 (Coprocessor)              | : Primary                |
| Suspend Mode      | : Disabled       | IRQ14 (Hard Disk)                | : Primary                |
| ** PM Events **   |                  | IRQ15 (Reserved)                 | : Disabled               |
| VGA               | : OFF            | ESC: Quit      ↑↓→←: Select Item |                          |
| LPT & COM         | : LPT/COM        | F1 : Help                        | PU / PD / + / - : Modify |
| HDD & FDD         | : ON             | F5 : Old Values (Shift)F2        | : Color                  |
| DMA / master      | : OFF            | F6 : Load BIOS Defaults          |                          |
| Primary INTR      | : ON             | F7 : Load Setup Defaults         |                          |
| IRQ 3 (COM 2)     | : Primary        |                                  |                          |
| IRQ 4 (COM 1)     | : Primary        |                                  |                          |

This category determines how much power is consumed. Default value is Disable. The following pages

| Item                    | Options        | Descriptions                                                                  |
|-------------------------|----------------|-------------------------------------------------------------------------------|
| <b>Power Management</b> | 1. Disable     | Global Power Management will be disabled                                      |
|                         | 2. User Define | Users can configure their own power management                                |
|                         | 3. Min Saving  | Pre-defined timer values are used such that all timers are in their MAX value |
|                         | 4. Max Saving  | Pre-defined timer values are used such that all timers MIN value              |

### 3. AWARD BIOS SETUP

| Item                     | Options                                                         | Descriptions                                                                                                                                                                                                                                                                                                                          |
|--------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PM Control by APM</b> | 1. No                                                           | System BIOS will ignore APM when power managing the system                                                                                                                                                                                                                                                                            |
|                          | 2. Yes                                                          | System BIOS will wait for APM's prompt before it enter any PM mode e.g. DOZE, STANDBY or SUSPEND<br>Note1: If APM is installed,& if there is a task running, even the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode!<br>Note2: If APM is not installed, this option has no effect. |
| <b>Video Off Method</b>  | 1. Blank Screen                                                 | The system BIOS will only blank off the screen when disabling video                                                                                                                                                                                                                                                                   |
|                          | 2. V/H SYNC + Blank                                             | In addition to (1), BIOS will also turn off the V-SYNC & H-SYNC signals form VGA cards to monitor                                                                                                                                                                                                                                     |
|                          | 3. DPMS                                                         | This function is enabled for VGA card that support DPM                                                                                                                                                                                                                                                                                |
|                          |                                                                 | Note: Green monitors detect the V/H SYNC signals to turn off its electron gun                                                                                                                                                                                                                                                         |
| <b>MODEM Use IRQ</b>     | 1. 3<br>2. 4<br>3. 5<br>4. 7<br>5. 9<br>6. 10<br>7. 11<br>8. NA | Use IRQ 3<br>Use IRQ 4<br>Use IRQ 5<br>Use IRQ 7<br>Use IRQ 9<br>Use IRQ 10<br>Use IRQ 11<br>Not Use IRQ                                                                                                                                                                                                                              |

### 3. AWARD BIOS SETUP

| Item                                | Options                                                                                      | Descriptions                                                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HDD Power Down</b>               |                                                                                              |                                                                                                                                                                                                                                                                                                             |
| <b>Doze Mode</b><br>(*) Remark 1    | 1. Disable                                                                                   | System will never enter DOZE mode                                                                                                                                                                                                                                                                           |
|                                     | 2. 1 Min<br>2 Min<br>4 Min<br>6 Min<br>8 Min<br>10 Min<br>20 Min<br>30 Min<br>40 Min<br>1 Hr | Defines the continuous idle time before the system enters DOZE mode.<br><br>if any item defined in (H) is enabled & active, DOZE timer will be reloaded.<br><br>Note: Normally,DOZE mode puts the system into low speed or 8MHz, screen may be off depending on Video Off Option                            |
|                                     |                                                                                              |                                                                                                                                                                                                                                                                                                             |
| <b>suspend Mode</b><br>(*) Remark 1 | 1. Disable                                                                                   | System will never enter SUSPEND mode                                                                                                                                                                                                                                                                        |
|                                     | 2. 1 Min<br>2 Min<br>4 Min<br>6 Min<br>8 Min<br>10 Min<br>20 Min<br>30 Min<br>40 Min<br>1 Hr | Defines the continuous idle time before the system enters SUSPEND mode.<br><br>If any item defined in (H) is enabled & active, SUSPEND timer will be reloaded.<br><br>Note: Normally,SUSPEND mode puts the system into low speed or 8MHz, clock is stopped, screen may be off depending on Video Off Option |
|                                     | 3. When Suspend                                                                              | BIOS will turn the HDD's motor off when system is in SUSPEND mode                                                                                                                                                                                                                                           |

\* **Remark 1:** All items mark with (\*) in this menu, will be loaded with predefined values as long as the item 'Power Management' is not configured to 'User Defined'

These items are :

Item 'System Doze' & 'System Suspend'

## 3. AWARD BIOS SETUP

### 3.7 PNP/PCI Configuration Setup

You can manually configure the PCI Device's IRQ. The following pages tell you the options of each

ROM PCI/ISA BIOS (2A5LAE39)  
PNP/PCI CONFIGURATION SETUP  
AWARD SOFTWARE, INC.

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| Resources Controlled By : Auto      | CPU to PCI Write Buffer : Disabled      |
| Reset Configuration Data : Disabled | PCI Dynamic Bursting : Disabled         |
|                                     | PCI Master 0 WS Write : Enabled         |
|                                     | PCI IRQ Activated By : Level            |
|                                     | PCI IDE IRQ Map To : PCI-AUTO           |
|                                     | Primary IDE INT# : A                    |
|                                     | Secondary IDE INT# : B                  |
|                                     | ESC: Quit      ↑↓→←: Select Item        |
|                                     | F1 : Help      PU / PD / + / - : Modify |
|                                     | F5 : Old Values (Shift)F2      Color    |
|                                     | F6 : Load BIOS Defaults                 |
|                                     | F7 : Load Setup Defaults                |

The following pages tell you the options of each item & describe the meanings of each option.

| Item                                                 | Options                                                             | Descriptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PCI IRQ Activated by</b>                          | Edge<br>Level                                                       | To tell the chipset the IRQ signals input is level or edge trigger                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>PCI IDE IRQ Map To</b>                            | PCI-AUTO<br>PCI-SLOT1<br>PCI-SLOT2<br>PCI-SLOT3<br>PCI-SLOT4<br>ISA | <p>PCI-AUTO</p> <p>The BIOS will:<br/>- scan for PCI IDE devices &amp; determine the location of the PCI IDE device</p> <p>( See below item )</p> <p>PCI-SLOT1<br/>PCI-SLOT2<br/>PCI-SLOT3<br/>PCI-SLOT4</p> <p>- assign IRQ 14 for primary IDE INT#<br/>IRQ 15 for secondary IDE INT#<br/>for the specified slot</p> <p>ISA</p> <p>- The BIOS will not assign any IRQs even if PCI IDE card is found!<br/>Because some IDE cards connect the IRQ 14 &amp; 15 directly from ISA slot thru a cord. (This cord is called Legacy Header)</p> |
| <b>Primary IDE INT#</b><br><b>Secondary IDE INT#</b> | A<br>B                                                              | To tell which INT the PCI IDE card is using for its interrupts                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### 3.8 Integrated Peripherals

ROM PCI/ISA BIOS (2A5LAE39)  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

|                           |   |          |                                                                                                                                                                            |
|---------------------------|---|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OnChip IDE First Channel  | : | Enabled  |                                                                                                                                                                            |
| IDE Primary Master PIO    | : | Auto     |                                                                                                                                                                            |
| IDE Primary Slave PIO     | : | Auto     |                                                                                                                                                                            |
| OnChip IDE Second Channel | : | Enabled  |                                                                                                                                                                            |
| IDE Secondary Master PIO  | : | Auto     |                                                                                                                                                                            |
| IDE Secondary Slave PIO   | : | Auto     |                                                                                                                                                                            |
| Onboard FDC Controller    | : | Enabled  |                                                                                                                                                                            |
| Onboard COM Port 1        | : | Auto     |                                                                                                                                                                            |
| Onboard COM Port 2        | : | Auto     |                                                                                                                                                                            |
| Onboard COM Port 2 Mode   | : | Standard |                                                                                                                                                                            |
| Onboard Print Port        | : | 378/IRQ7 |                                                                                                                                                                            |
| Onboard Port Mode         | : | Normal   |                                                                                                                                                                            |
|                           |   |          | ESC: Quit      ↑↓→←: Select Item<br>F1 : Help      PU / PD / + / - : Modify<br>F5 : Old Values (Shift)F2      Color<br>F6 : Load BIOS Defaults<br>F7 : Load Setup Defaults |

#### **OnChip IDE First Channel**

This option enables the first channel IDE on the motherboard. The settings are Enabled or Disabled.

#### **IDE Primary Master PIO**

This option selected the on board PCI IDE primary master HDD PIO Mode.

#### **IDE Primary Slave PIO**

This option selected the on board PCI IDE primary slave HDD PIO Mode.

#### **OnChip IDE Second Channel**

This option enables the secondary channel IDE on the motherboard. The settings are Enabled or Disabled.

#### **IDE Secondary Master PIO**

This option selected the on board PCI IDE secondary master HDD PIO Mode.

#### **IDE Secondary Slave PIO**

This option selected the on board PCI IDE secondary slave HDD PIO Mode.

#### **Onboard FDD Controller**

This option enables Onboard FDD controller or disabled Onboard FDD controller and use expand FDD controller card.

### **Onboard COM Port 1**

This option specifies the first serial port address and IRQ on the motherboard.

### **Onboard COM Port 2**

This option specifies the secondary serial port address and IRQ on the motherboard.

### **OnBoard COM Port 2 Mode**

This option specifies the COM 2 port operation mode as Standard, HPSIR or ASKIR.

### **Onboard Print Port**

This option specifies the print port address and IRQ on the motherboard.

### **Onboard Print Mode**

This option print port is ECP/EPP or normal moed.

### **3.9 Supervisor Password & User Password Setting**

The supervisor password is for system and setup utility access and the user password is for the system

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

**ENTER PASSWORD:**

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can

**PASSWORD DISABLED.**

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

## 3.10 IDE HDD Auto Detection

The Enhance IDE features was included in all Award BIOS. Below is a brief description of this feature.

### 1. Setup Changes

#### <I> Auto-detection

- BIOS setup will display all possible modes that are supported by the HDD including NORMAL, LBA & LARGE.
- If HDD does not support LBA modes, no 'LBA' option will be shown.
- If no of cylinders is less than or equal to 1024, no 'LARGE' option will be show
- Users can select a mode which is appropriate for them.

ROM/PCI/ISA BOPS (2A59GE3A)

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

| HARD DISKS                                    | TYPE | SIZE | CYLS  | HEAD    | PRECOMP  | LANDZ   | SECTOR | MODE |
|-----------------------------------------------|------|------|-------|---------|----------|---------|--------|------|
| Primary Master :                              |      |      |       |         |          |         |        |      |
| Select Primary Master Option ( N = Skip ) : N |      |      |       |         |          |         |        |      |
| OPTION                                        | SIZE | CYLS | HEADS | PRECOMP | LANDZONE | SECTORS | MODE   |      |
| 1(Y)                                          | 516  | 1120 | 16    | 65535   | 1119     | 59      | NORMAL |      |
| 2                                             | 516  | 524  | 32    | 0       | 1119     | 63      | LBA    |      |
| 3                                             | 516  | 560  | 32    | 65535   | 1119     | 59      | LARGE  |      |

#### <II> Standard CMOS Setup

|         |                | CYLS | HEADS | PRECOMP | LANDZONE | SECTOR | MODE   |
|---------|----------------|------|-------|---------|----------|--------|--------|
| Drive C | : User (516MB) | 1120 | 16    | 65535   | 1119     | 59     | NORMAL |
| Drive D | : None         | 0    | 0     | 0       | 0        | 0      | -----  |

When HDD type is in 'user' type, the "MODE" option will be opened for user to select their own HDD mode.

### (2) HDD Modes

The Award BIOS supports 3 HDD modes : NORMAL, LBA & LARGE

#### **NORMAL mode**

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

### 3. AWARD BIOS SETUP

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The maximum number of cylinders, head & sectors for NORMAL mode are 1024, 16 & 63

|                  |        |
|------------------|--------|
| no. Cylinder     | (1024) |
| x no. Head       | ( 16)  |
| x no. Sector     | ( 63)  |
| x no. per sector | ( 512) |
| 528 Megabytes    |        |

If user set their HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that!

#### LAB (Logical Block Addressing) mode

This is a HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder number into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is obtained by the following formula:

|                    |         |
|--------------------|---------|
| no. Cylinder       | ( 1024) |
| x no. Head         | ( 255)  |
| x no. Sector       | ( 63)   |
| x bytes per sector | ( 512)  |
| 8.4 Gigabytes      |         |

#### LARGE mode

Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of HDD!

Example of LARGE mode:

| CYLS. | HEADS | SECTOR | MODE   |
|-------|-------|--------|--------|
| 1120  | 16    | 59     | NORMAL |
| 560   | 32    | 59     | LARGE  |

The BIOS tricks DOS (or any other OS) into thinking that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse

Maximum HDD size:

|                    |         |
|--------------------|---------|
| no. Cylinder       | ( 1024) |
| x no. Head         | ( 32)   |
| x no. Sector       | ( 63)   |
| x bytes per sector | ( 512)  |
| <hr/>              |         |
| 1 Gigabytes        |         |

#### **(3) Remarks**

To support LBA or LARGE BLOCK mode of HDDs, there must be some softwares involved. All these software is located in the Award HDD Service Routine(INT 13h). It may fail to access the HDD when LBA (LARGE) mode is selected if you are running under an Operating System which replaces the whole INT 13h.

### **3.11 Power-On Boot**

After you have made all the changes to the CMOS values and the system cannot boot with the CMOS values selected in Setup, restart the system by turning it OFF then ON or Pressing the "RESET" button on the system case. You may also restart by simultaneously pressing the <Ctrl>, <Alt>, and <Delete> keys. Upon restarting the system, immediately press <Insert> to load BIOS defaults CMOS.

## **3.12 BIOS Reference - POST Message**

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message **PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP** will be shown in the information box at the bottom.

### **POST Beep**

Currently there are two kind of beep codes in BIOS.

One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other beep code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

### **Error Messages**

One or more of the following messages may be displayed if the BIOS detects an error during the POST.

#### **CMOS BATTERY HAS FAILED**

CMOS battery is no longer functional. It should be replaced.

#### **CMOS CHECKSUM ERROR**

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

#### **DISPLAY SWITCH IS SET INCORRECTLY**

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

**FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.**

**FLOPPY DISK(S) fail (40) → Floppy Type mismatch.**

**Hard Disk(s) fail (80) → HDD reset failed**

**Hard Disk(s) fail (40) → HDD controller diagnostics failed.**

**Hard Disk(s) fail (20) → HDD initialization error.**

**Hard Disk(s) fail (10) → Unable to recalibrate fixed disk.**

**Hard Disk(s) fail (08) → Sector Verify failed.**

**Keyboard is locked out - Unlock the key.**

### **3. AWARD BIOS SETUP**

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The BIOS detected that the keyboard is locked. P17 of keyboard controller is pulled low.

**Keyboard error or no keyboard present.**

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

**Manufacturing POST loop.**

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

**BIOS ROM checksum error - System halted.**

The checksum of ROM address F0000H-FFFFFH is bad.

**Memory test fail.**

BIOS reports the memory test failed if the onboard memory is tested in error.